Leveraging IT Transformation for Homeland Security

Information Technology Reform

Virginia's Information Technology (IT) Reform was launched in 2002 by the Governor and General Assembly. The creation of the Virginia Information Technologies Agency (VITA), governed by the Information Technology Investment Board (ITIB) and overseen by the state Chief Information Officer (CIO), significantly changed the structure of state government IT, promoting increased efficiencies and improved services to citizens.

The initial stages of IT Reform have produced early successes in improved governance and oversight, centralized procurement, cost savings and avoidances, promotion of enterprise solutions, and added value to our citizens and customers.

Building on such successes, IT Reform now moves to *IT Transformation*. Over the next three years, VITA and Northrop Grumman will modernize the state's IT infrastructure via an innovative public-private partnership. A secure, cohesive, cost-effective, and expandable IT foundation will be available for the kinds of high-capacity / high-capability services needed to support homeland security.

Partnership Program Goals

The IT Infrastructure Partnership will transform the Commonwealth's IT infrastructure, providing multiple benefits:

- Modernize and standardize aging IT networks, servers, data centers, desktop and laptop computers, and consolidate help desks — all <u>within</u> current (FY 05) expenditure levels of $236 million annually;

- Provide basic IT services to all state agencies at consistent service levels and predictable costs;

- Improve the IT services that support the state's workforce, increasing their efficiency and productivity;

- Ensure the security of state assets, including a central data center and back-up site meeting post-9/11 security standards;

- Provide career opportunities for current state IT employees;

- Enhance economic development in the Commonwealth; and,

- Reduce costs over the long-term by spending taxpayer dollars more wisely.

VITA's IT Infrastructure Partner

On November 14, 2005, CIO of the Commonwealth Lemuel C. Stewart, Jr. signed an Interim Comprehensive Infrastructure Agreement with Northrop Grumman, a $30 billion/year defense contractor and systems integrator. Northrop Grumman already has a significant presence in Virginia, with 32,000 employees statewide, including its Newport News Shipbuilding, Mission Systems, and IT Sectors.

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The interim agreement allows time for detailed plans and financing to be worked

out prior to beginning actual transformation activities. Upon successful completion of those interim activities, including necessary General Assembly approvals, the agreement allows the parties to proceed to IT Transformation.

IT Improvements Benefiting Homeland Security

In performing its IT Transformation obligations under the 10-year, $2 billion contract, Northrop Grumman will invest $272 million in IT infrastructure improvements.

Northrop Grumman will construct a 164,700-square-foot primary data center – the Commonwealth Enterprise Solutions Center at Meadowville Technology Park in Chesterfield County -- with planned occupancy in the spring of 2007.

This data center will be a hardened Tier III center, which means it will have redundant power and cooling systems to reduce downtime and provide at least 99.98 percent site availability.

The facility also will provide many state-of-the-art security features, including radio frequency identification badges coupled with biometric readers. The site will utilize Northrop Grumman's Security Analysis Management System (SAMS) to coordinate access and video surveillance. The SAMS will have the ability to recognize security incidents without human intervention.

Also in 2007, Northrop Grumman plans to establish a consolidated help desk and back-up data center at the Southwest Virginia Solutions Center at Lebanon, Russell County.

This 131,000- square-foot facility will possess many of the same features as the primary site, improving the overall reliability of the Commonwealth's IT infrastructure. Located nearly 250 miles from the primary data center, the "live" back-up data center will allow disaster recovery to occur within five to 24 hours, a significant improvement over the current disaster recovery window of 72 hours by back-up tapes. In addition to housing the back-up data center and the consolidated help desk, this facility also will house the primary Enterprise Security Operations Center (ESOC).

Physical and Cyber-Security

The ESOC focuses its 24-7 effort on real-time, pro-active monitoring, assessing and analyzing the security posture of the state's IT infrastructure. Defense of the Commonwealth includes all activities classified as security events, eventually becoming categorized as a threat or non-threat.

Upon the determination of active incident status, the ESOC elevates the information to the Centralized Security Incident Response Center (CSRIC) located at the Richmond Enterprise Solutions Center for action and tracking. The two teams of personnel will be cross-trained on ESOC and CSIRC duties, stationed at the separate locations but working in parallel. The ESOC staff will monitor, manage, and maintain all security-related technologies, including antivirus, firewalls, intrusion detection, content filtering, network scanning, and identification management capabilities.

This unprecedented focus and resource for cyber and physical security is essential for the protection of the Commonwealth's assets in the post-9/11 world.

Network Infrastructure

As part of the IT Transformation project, Northrop Grumman will modernize the entire data network throughout the Commonwealth. The result will be a standardized and secure network infrastructure for current and future applications.

One such application is the next generation E-911 system. Coordinated in partnership with the Wireless E-911 Services Board, this new system will require a highly secure and reliable Internet protocol-based network connecting all of the public safety answering points (PSAPs) in the state. In addition,

this network can and should be utilized for other applications requiring similar connectivity. Other potential public safety / homeland security applications that could benefit from the improved network infrastructure are limitless.

Virginia Base Mapping Program (VBMP)

The goal of the VBMP is to provide a common database and format for the sharing of geographic information system (GIS) data. Driven by the need of local PSAPs to share data regionally for emergency response, the data also is available for other applications, including planning, analysis, and recovery.

In 2001, the Wireless E-911 Services Board provided VITA's Virginia Geographic Information Network (VGIN) nearly $10 million to capture digital orthographic (DO) photography of the entire Commonwealth.

DO photography consists of aerial photographs that have been adjusted for the curvature of the earth and elevation changes. This adjustment means the photography, when viewed in GIS, is extremely accurate, allowing distances and measurements to be taken directly from the photographs.

DO photography has provided a common base for the development of a statewide road centerline file and other data layers, also funded from the Wireless E-911 Services Board's original investment. The entire road network has been captured with street name and address attribution provided by each locality.

The DO photography will be updated every four years, with the next capture to occur in the spring of 2006. The road centerline file will be updated on a continual basis from data uploaded by the individual localities. Hosted as an enterprise database, the data is available to all state agencies and localities that need of GIS data.

Sample DO Photography

Virginia Readiness, Response and Recovery (VR3) System

The VR3 System is a secure Web-accessible GIS application designed to provide a simultaneous view of critical situations to multiple users on a local, regional, and even statewide basis.

Funded by the Governor's Office of Commonwealth Preparedness in partnership with VITA and the Virginia Department of Emergency Management, the VR3 is designed to act as a single, comprehensive, "all hazards" foundation for geospatial data and analysis tools in support of homeland security and public safety across Virginia.

Included in the system are seamless, statewide, high-resolution aerial photography; critical geocoded databases (i.e., schools, hospitals, hazardous materials, critical infrastructure, response assets); and user-friendly access, viewing and analysis capabilities. The VR3 can be integrated with specialized incident management and messaging systems and critical databases to provide simultaneous geospatial information support, visualization and mapping to multiple users.

Access to the VR3 provides more consistent and reliable information to all potential users, whatever their physical location or responsibility, and is an extremely efficient platform to communicate and share data i.e., incident locations, response plans, recovery activities).

Conclusion

VITA, in partnership with Northrop Grumman, will be transforming the state's IT over the next three years to serve the needs of the Commonwealth well into the future. Two new data centers, vastly improved security monitoring and response, and a new, highly secure and robust data network will be great assets that can be leveraged to provide the most efficient and effective services possible to citizens of the Commonwealth.

Coupled with other VITA projects, such as the next generation E-911 project, VBMP and VR3, these investments also can provide support for many homeland security or Commonwealth preparedness applications. VITA stands ready to assist in any way possible to ensure success.

For More Information:

www.vita.virginia.gov

www.ngc.com

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